**EVOLUTION REVIEW QUESTIONS**

1. What is the name of the theory that states that the pattern of fossils could be accounted for by a

series of global disasters that wiped out most species on Earth? Which scientist is associated with

this theory?

2. What is the name of the theory that states that geological changes are slow and gradual and that

natural laws and processes have not changed over time? Which scientist is associated with this

theory?

3. Which part of Jean-Baptiste Lamarck’s theory does not fit with Charles Darwin’s theory of evolution

by natural selection?

4. During his trip on the HMS Beagle, what observations did Darwin make with regard to biogeography?

5. Name 2 unique species found on the Galapagos islands & describe what is unique about each of

them.

6. The forelimbs of the human, horse, cat, bat, and whale have very similar bone structure, but they

are adapted to carry out very different functions. This is an example of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

feature. What inference can be made about these organisms?

7. The extra toes on pigs’ feet that do not touch the ground are examples of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

features. What inference can be made about the existence of these features?

8. The wings of birds & the wings of butterflies are both broad, thin, light, and well adapted to their

function of flight. They are examples of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ features. What inference can be

made about the mechanism of evolution of these kinds of features?

9. The evolution of antibiotic resistance in bacteria is an example of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ selection.

The selective breeding of dog breeds is an example of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ selection.

10. Cheetahs have very little genetic diversity because their population was reduced to just 7

individuals 10000 years ago. This is an example of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ effect.

11. The human population of Iceland was started with a relatively small initial population (primarily of

Norwegian, Scottish, and Irish origin) more than 1000 years ago. This is an example of the

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ effect.

12. Over many generations, a population of hummingbirds gradually has longer and longer bills (beaks). This is an example of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ selection.

13. Over many generations, a population of hummingbirds has an even greater percentage of individuals with bills of an average length. This is an example of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ selection.

14. Over many generations, a population of hummingbirds gradually has longer and longer bills, that allow them to feed on certain flowers that have extremely long nectar tubes. This is an example of what pattern of evolution?

15. Give an example of a human genetic mutation that is beneficial in some circumstances, but harmful in others. What determines if a mutation is beneficial?

16. What are the 2 most common forms of sexual selection?

17. If a population evolves into separate species while within the same geographic area, it is called

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ speciation.

18. The evolution of a single species into many new species, filling a variety of formerly empty ecological niches is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

19. The similar body shapes of sharks and dolphins (even though they are not closely related) is an example of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ evolution.

20. Male frogs of different species have unique calls that attract only females of their own species.

This is an example of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ isolation, which is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

reproductive isolating mechanism.

21. Zebroids, the hybrid offspring of matings between horses and zebras, cannot reproduce.

This is an example of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ isolation, which is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

reproductive isolating mechanism.

**EVOLUTION REVIEW QUESTIONS - ANSWERS**

1. catastrophism; Georges Cuvier

2. uniformitarianism; Charles Lyell

3. He proposed that characteristics acquired during an individual organism’s lifetime are passed on to their offspring. (Darwin proposed that the characteristics are already present due to natural variations; if they are adaptive they will be passed on in greater proportion to the next generation.)

4. He observed that fossil species that were similar to living species had the same geographical pattern of distribution (biogeography), suggesting that the living species had evolved from these fossil species.

5. marine iguana – there is no other aquatic iguana species in the world

flightless cormorant – there is no other species of cormorant that does not fly

6. homologous; can infer that they have common evolutionary origin (i.e. a common ancestor)

7. vestigial; can infer that the pigs descended from an ancestral species where the toes were used.

8. analogous; can infer that a similar function (or environment) can lead to similar characteristics developing in organisms that are distantly related

9. natural; artificial

10. bottleneck effect

11. founder effect

12. directional

13. stabilizing

14. coevolution

15. The sickle cell anemia allele is generally harmful because it affects the health of the individual; in areas of Africa where malaria is prevalent it can be beneficial because presence of the allele gives the individual resistanct to malaria. The environment determines if a mutation is beneficial or harmful.

16. female mate selection (females choosing males to mate with) & male-versus-male competition (males competing with each other for territory & access to females for mating).

17. sympatric

18. adaptive radiation or divergent evolution

19. convergent

20. beahvioural; prezygotic

21. hybrid sterility; postzygotic